Background
Public health and environmental challenges facing the world in the 21st century, including the ageing population, increasing urbanisation, the rise of non-communicable diseases and climate instability, require an interdisciplinary response. The importance of this is now widely accepted and is reflected in the Faculty of Public Health (FPH) workforce strategy, which aims to '*enable the wider workforce to deliver improvements to the public's health*'.[1]

The Royal Society for Public Health (RSfPH) identified 'environment' professionals (such as architects, town planners, surveyors, and ecologists) as the largest employment group of the wider public health workforce (13%), the most interested (20%) but one of the least involved with the public health agenda (1%).[2]

Research on the impact of design and quality of buildings on the health of occupants has been widely reported for numerous outcomes including; cardiovascular, respiratory and infectious disease, mental health, injuries, and allergies.[3] Despite this evidence base, too often places of poor design, detrimental to health, are being created. It is estimated that the cost to the National Health Service of poor-quality housing is £2.5billion per annum.[4]

How the architecture profession can contribute to the public health agenda
Architecture is the process and product of planning, designing, and constructing buildings or other structures. Architects have a responsibility for building form, elevations and elements of construction.

It is estimated that as much as 90% of our time is spent indoors, be it at home, work or in leisure, and the work of an architect can cover all of these aspects.[5] Therefore, their influence on health is not just limited to healthcare facilities, as has been the emphasis in the past, but also through social care facilities, residential buildings, educational institutions, and commercial developments (retail, office, hospitality, leisure).

Architects not only work on new buildings; they can be involved in regeneration/ retrofitting or choose to specialise in the relatively new field of urban design, thereby influencing site allocation, street pattern and many other elements that a town planner might.

Architects can play a vital role in ensuring that the design of buildings is health promoting – not only in physical environmental terms such as lighting, ventilation, heating and hazards, but also more holistically, in how buildings encourage physical activity, social mixing, equity of access, and address health and wellbeing needs across the life course. This is intertwined with environmental sustainability, such as; sourcing of materials, water management, and access to facilities.[3,5] Their work can also contribute to reducing inequalities. For example, buildings with better energy efficiency can have lower running costs and therefore lower risk of fuel poverty.[3]

Therefore, architects can play a vital role as part of the wider public health workforce, influence the wider determinants of health and contribute to prevention at numerous levels (*see Figure 1*).

[Insert Figure 1 here]

Architects are skilled professionals who require commercial awareness, making them well placed to consider the return on investment for healthy design. They can assess health impacts, with light, air quality, and acoustic studies. The architectural process involves engaging numerous groups including developers, engineers, planners, construction staff, and the general public, either directly as clients or through consultation processes, providing many opportunities to raise awareness of the effect of buildings on health, and to influence the built environment sector to make healthier places.

Ways to engage with the architecture profession
The RSfPH identified nine themes for engagement with other sectors.[6] In this paper, the current level of engagement and potential future actions are discussed for three of these themes.

Partnership working
The professional body for architects is the Royal Institute of British Architects (RIBA), and for planners, the Royal Town Planning Institute (RPTI). In the Professional Code of Conduct from RIBA the only mention of health is *'Members shall have reasonable knowledge of, and abide by, all laws and regulations relating to health and safety'*.[7] In contrast, in the RTPI Ethics and Professional standards public health responsibility is much more explicit: *'The planning profession is uniquely placed to promote equality and create inclusive places which meet the needs and aspirations of everyone… Planning also has a wider role in addressing the impact of the built environment on tackling poverty and inequality and contributing to social justice'.[8]*

Some architects are already interested in promoting health through their work and the public health system needs to channel their proactiveness.[9] The RSfPH suggested the development of a single brand to identify members of the wider public health workforce.[6] Professionals labelling themselves as health specialists should be regulated to maintain quality of advice and standards. This could be through credentialing or developing a new regulated profession such as sustainability consultants or urban designers. The Public Health Skills and Knowledge Framework could act as a tool for this.

In 2018, '*Improving Health and Care through the home: A National Memorandum of Understanding'* was signed by 26 organisations including the RTPI. RIBA is not currently a signatory, but as the professional body would be key to the effectiveness of this agreement.

Workforce development initiatives have successfully brought together senior public health and planning professionals to share learning, develop relationships, and experience sites of good practice. Approaches which could be used with architects include study tours or interdisciplinary think tanks, such as the BMW Guggenheim Lab.

Addressing training needs
There is no curriculum requirement to teach health by the architectural accreditation bodies, and consequently few architecture courses offer specific health related content.[10] Any health aspects tend to be restricted to healthcare settings themselves although RIBA has started offering online continuing professional development (CPD) modules relating to health. Whereas in planning, although health is not explicitly mentioned in the curriculum guide (RTPI Policy Statement on Initial Planning Education) there are many hooks which allow the topic to be integrated such as '*enhancing the public realm for the benefit of all in society*', and correspondingly this has a larger emphasis in many curriculums and CPD resources.

Healthy architecture is not yet a mainstream discipline. However, given the enormity of the challenges facing the world in the 21st century, it is likely to gain momentum; just as 'sustainability' moved from a marginal concern a few decades ago and is now an integral part of most architectural design processes.[5] In the short term, with sustainability already a curriculum requirement, health could be incorporated as a driver for sustainability. In the longer term, ideally public health should be directly incorporated into the RIBA curriculum and any CPD materials would be co-developed with public health bodies such as RSfPH and the FPH.

Building the evidence base
The focus of research and guidance has been minimal on buildings themselves. In an umbrella literature review of the impacts of the built environment on health just 21 (12%) of the 178 studies that met the inclusion criteria were focussed on housing, compared to 44 (25%) on neighbourhood design and 63 (35%) on natural and sustainable environments.[3] Government funding for the BRE, an organisation dedicated specifically to built environment research stopped in 1997 and it has since been operating as a charitable trust.

Most architecture and health conferences relate specifically to hospital design or environmental hazards in existing housing rather than health and architecture in the broader sense.[9] As a comparison, for planning there have been many conferences and courses on healthy spatial planning; the RTPI holds events on wellbeing, mental health, dementia, and healthy lifestyles, and there have been numerous events run by Public Health England.

The extent to which research has filtered through to policies, standards and tools is variable. Rules for housing and planning are spread across building regulations, national and local planning requirements, technical standards and voluntary standards. The Town and Country Planning Association (TCPA) is advocating for a Healthy Homes Bill, whereas the requirement is already explicit in the government's National Planning

Policy Framework. The NHS Healthy New Towns, Transport for London's Healthy Streets, RSfPH's Health on the High Street and the TCPA have all produced useful advocacy reports for improving health through planning.[9] Future efforts could be directed at making evidence and corresponding policy and tools more easily accessible in their structure and dissemination through appropriate channels to reach the architecture profession. In addition, joint conferences for architects and health professionals could be developed, to share emerging evidence, best practice and align recommendations on health in the broadest sense).

Conclusion
Despite the remit, skills and potential influence of architects there has been relatively little engagement between public health and this profession. Much more attention to date has been on town planners.

Opportunities for engagement exist through improved partnership working, addressing training needs and building the evidence base. A partnership with RIBA is key, including their buy-in to the existing memorandum of understanding. Joint workforce initiatives or could be helpful. Incorporating health into both undergraduate and postgraduate education and CPD ideally through co-developed content is recommended. Lastly, public health should help build the architecture and health evidence base and make it more accessible to the architecture profession, for example with plain language summaries or infographics, so that it filters more effectively into corresponding policies and legislation.

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